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salts as culture media. *Polytrichum commune* could neither be germinated in darkness in the solutions of inorganic salts nor by the addition of organic iron salts to the fluids. Moss spores have been germinated in darkness under chemical stimuli by both HEALD and TRÉBOUX. LAAGE is the first to report germination of fern spores by means of chemical stimuli.—W. J. G. LAND.

Artificial apospory in ferns.—GOEBEL¹⁷ has published the result of his studies on apospory in ferns and on regeneration in *Vicia* and *Phaseolus*. The main part of his paper is devoted to apospory and a very brief account is given of regeneration in *Vicia*.

Contrary to BOWER's statement that attempts to induce apospory, though successful in certain mosses, have been entirely without results in ferns, GOEBEL succeeded in inducing artificially aposporous prothallia from primary leaves of sporophytes in many forms among ferns, such as *Aneimia Drageana*, *Alsophila van Geertii*, *Ceratopteris thalictroides*, *Gymnogramme chrysophylla*, *Polypodium aureum*, *Pteris longifolia*, and others. On certain parts of the under surface, of margin or of petiole of the primary leaf, there are produced prothallia, sporophytes, or even structures which really seem to be intermediate between sporophyte and prothallium by their having stomata and antheridia.

GOEBEL drew three conclusions from his studies: (1) regeneration is more active in a young leaf than an older one; (2) the sporophytic structure is not the constant product of regeneration; (3) there seems to exist no great difference between the nuclei of prothallia and those of sporophytes, and accordingly no sharp distinction between the x and $2x$ generations. He adds, one might regard the prothallium, phylogenetically, as a rudimentary leaf bearing sexual organs, though to determine this question further investigation is necessary.

Among the three conclusions drawn by GOEBEL, the third is a great problem. He does not enter in his paper into nuclear detail at all; therefore, cytologically it is still an open question.—SHIGÉO YAMANOUCHI.

Items of taxonomic interest.—W. H. BLANCHARD (*Torreya* 7:97-102. 1907), in discussing the eastern species of *Amelanchier*, describes 2 new species.—N. L. BRITTON (*idem* 102) has described a new Mexican species of *Ribes*.—H. D. HOUSE (*idem* 133-136), in a second paper on southern violets, has described a new species and a new hybrid.—W. H. BLANCHARD (*idem* 139, 140) has described a new *Rubus* (red raspberry) from Vermont.—E. BRAINERD (*Rhodora* 9:93-98. 1907) has begun a presentation of the older types of North American violets.—L. M. UNDERWOOD (*Bull. Torr. Bot. Club* 34:243-262. 1907), in continuation of his studies on "American ferns," has published a preliminary review of the N. Am. Gleicheniaceae, all the species being referred to *Dicranopteris*, in which 18 species are recognized, 5 being described as new, and all the rest being transferred.—C. L. SHEAR (*Bull. Torr. Bot. Club* 34:305-317. 1907) has described 21 new

¹⁷ GOEBEL, K., Experimentell-morphologische Mitteilungen: 1. Künstlich hervorgerufene Aposporie bei Farnen. 2. Ueber die Bedingungen der Wurzelregeneration bei einigen Pflanzen. Sitz. Kön. Bayer. Akad. Wiss. 37:119-138. figs. 13. 1907.

species of fungi, most of which were discovered during his studies of the fungous diseases of the cranberry. Three new genera are described: *Plagiorhabdus* (2 spp.), *Bothrodiscus*, and *Acanthorhynchus*.—O. STAPP (Jour. Linn. Soc. Bot. 38:6-17. 1907) has established a new genus (*Hallieracantha*) of Acanthaceae, to include species from Borneo and the Philippines heretofore referred to *Ptyssiglottis*; 19 species are recognized, 11 of which are new.—R. LAUTERBORN (Ber. Deutsch. Bot. Gesells. 25:238-242. 1907) has described a new genus (*Thioploca*) of sulfur bacteria, belonging to the Beggiatoaceae.—J. M. C.

The male gametophyte of the podocarps.—JEFFREY and CHRYSLER¹⁸ have been able to examine the male gametophyte of certain species of *Podocarpus* and *Dacrydium*, as well as of *Agathis*, obtained from New Zealand and Java, so far as material preserved in alcohol or formalin would permit. The conspicuous feature is the development of a prothallial tissue, by division of the two original prothallial cells, consisting in some cases of as many as eight cells. The walls of this tissue break down and the nuclei are freed, even from their cytoplasm, and swarm into the pollen tube. The authors do not regard this as a primitive feature, but consider the "ground plan" of this development as indicating the derivation of the podocarps and araucarians from an ancestral stock allied to the Abietineae. This feature also indicates that the podocarps and araucarians may be more nearly allied than has been supposed.—J. M. C.

Infection experiments with mildew.—REED¹⁹ has been investigating the question of "physiological species" among the mildews. Recent work on mildews has indicated that each genus, and often each species of host plant, has its own particular specialized form. Infection experiments were conducted with twenty-three different varieties of commonly cultivated cucurbits, representing five species and three genera (*Cucurbita*, *Cucumis*, and *Lagenaria*). Each of these hosts was readily infected when inoculated with the conidia taken from any other. There was no difference in the infecting power of the mildew on the different species and genera, and there is no evidence of any specialization in the mildew of the Cucurbitaceae.—J. M. C.

A lycopod with a seedlike structure.—Miss BENSON²⁰ has investigated the reproductive structures of BERTRAND'S *Miadesmia membranacea*, a herbaceous paleozoic lycopod. The megasporangium develops a single thin-walled spore, "which in development and structure resembles an embryo sac and germinates *in situ*." The sporangium is surrounded by an integument with a small micropyle, which is surrounded by numerous long processes of the integument that "formed

¹⁸ JEFFREY, E. C., and CHRYSLER, M. A., The microgametophyte of the Podocarpaceae. Amer. Nat. 41:355-364. figs. 5. 1907.

¹⁹ REED, GEORGE M., Infection experiments with the mildew on cucurbits, *Erysiphe cichoracearum* DC. Trans. Wis. Acad. Sci. 15:527-547. 1907.

²⁰ BENSON, M., *Miadesmia membranacea* Bertrand; a new paleozoic lycopod with a seed-like structure. Abstract read before Roy. Soc. London, June 13, 1907.